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ABSTRACT

A contrast is drawn between "norm-referenced" grading (on the curve) and "criterion-referenced" grading (including contract). Most teachers incorporate both methods but without always being aware of the logic behind their grading procedures. It is suggested that the academic units of the University of Michigan must continue to search out a rational policy to guide the grading decisions made by its teachers. (Author/LBH)

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GRADING BY CONTRACT

Memo to the Faculty

From the Center for Research on Learning and Teaching

The University of Michigan

NO. 57
APRIL 1976

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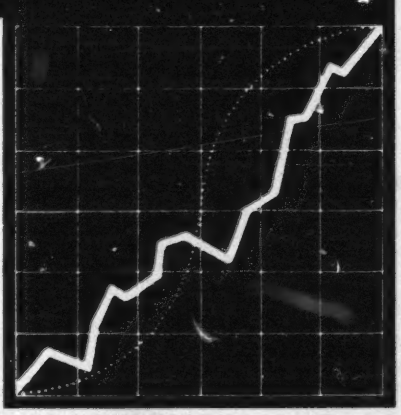
The gentleman C of a former day has now become the gentleperson B. Grade inflation has several causes and one is student pressure: "Without an A in this course, I won't get into medical school and there goes two million dollars in future earnings." This argument is typical of the climate for grading these days. Grading decisions are rarely easy or comfortable to make and are especially difficult for that inevitable number of students who seem always to be at or near the borderline between A and B (or between A− and B+). Until a teacher has met a "payroll"—filled out a grade sheet—he or she has not come to terms with the realities of the instructional process in a university.

The standards of the teacher as to what signifies "excellent" performance are, perhaps, the most significant single means by which a teacher shapes the academic values of a university. The research productivity of the faculty, variations in the SAT scores of the entering freshmen, the success of the athletic teams, and the quality of the performing arts are each important but none can compare to the importance of the standards used by the faculty when assigning grades to students. Right or wrong, this is the collective means by which the faculty defines the quality dimensions of our educational program.

The mechanism of grading has become a logistical necessity for managing a large number of students moving through an incredibly varied curriculum. The transcript of course credits and grades is the accepted currency for the exchange of information about levels-of-performance achieved by students. Due to inflation, Pass/Fail grading and changing conceptions of grading, the meaning of this transcript information is blurred. Perhaps the traditional force of our grading system can be reestablished through aggressive counterreaction by the faculty. On the other hand, we might consider redefining the function of grades, although this is not likely to happen—at least not quickly. In the meantime, each teacher must exercise the responsibility for evaluating students and these pages, therefore, will review the issues which are basic to the process of assigning a grade.



THE TEACHER AT THE FIRST CHOICE POINT

Twelve years ago (January, 1964, *Memo* #4) Professor John Milholland wrote our first *Memo* on grading and described a conceptual alternative that is still the first choice point faced by the teacher: to grade students in competition with one another or in terms of how well they achieve the explicit standards set by the teacher.

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Teachers are faced with two general bases for grading: absolute or relative standards. In the first case, grades are determined by the extent to which students achieve certain levels of performance. When relative standards are used, a student's standing with respect to other members of his class determines his grade.

The use of an absolute standard *requires* that a teacher formulate his major and minor objectives and then devise some means of telling when a student has achieved them.

Years ago resistance to grading on the basis of absolute standards (often unreasonable and idiosyncratic) led to the widespread practice of using relative standards.

. . . With absolute standards, the performance of each student is evaluated with respect to predetermined criteria, and, in theory, it would be possible for every student in a class to get an A, or at least an A or a B. Students could feel free to discuss the course with each other, to study together, and to help each other learn, since they would be in competition with the professor's scale and not with each other.

Most of the tempest and turmoil about grading in the 60's focused on "the curve." "Grading is an institution within an institution, a two-pronged device to divide, by pitting student against student, and to conquer, to raise a competitive animal ready to fill his yoke in the American economic treadmill. (A committee of concerned students.)" This typical outburst underlines the basic (but not the only) complaint.

Improving the Established System

Dr. Benno G. Fricke, Chief, Evaluation and Examinations Office, has recommended procedures to strengthen grading on the curve by taking into account the ability profile of the students making up the course.

Although every method of grading will have shortcomings, it is my suggestion that each instructor anchor his grading practices to one or both of the following: (1) the average U–M *grade-point average* of students in his class, and (2) the average U–M *scores on standardized tests of academic quality* of students in his class. The first of these can be computed very easily from information supplied to the instructor by students during the first day or two of each term; the second can be obtained during the first month or two of each term from the Evaluation and Examinations Division. . . . One would expect that, in general, if an instructor's students are above average on most of the measures, he would give them above average grades, and that if they tend to be below average he would give them below average grades. (1965)

On request from a teacher, the Evaluation and Examinations Office will compile a class profile to show how the class as a group (individual students are not identified) compares with the student body as a whole on various measures of aptitude and their accumulated GPA.

More recently, Dr. Fricke distributed a comprehensive report to the faculty on *Grading, Testing, Standards, and All That* (1975). The first section ". . . explains why grades and test scores often appear to have lost their values; it also provides support for the continued use of these much criticized measures . . ." This comprehensive 136-page analysis is a significant and detailed summary of what is essentially the system of grading that has prevailed on our campus for the past half century or so.

On April 5 the LS&A faculty voted in favor of the idea of including the course GPA with each grade recorded on a student's transcript.

The Contrary Position

Professor Martin Gold (1966) has clearly expressed a contrary point of view. His statement anticipated issues now treated under headings such as: criterion-referenced testing, norm-referenced testing, mastery learning, competency-based evaluation, and instructor accountability.

***It seems to me that sound educational policy does not put students in competition with one another. Sound policy puts them instead in competition with standards of excellence.* Grades ought to reflect how well a student has acquired the knowledge which he has committed himself to study. *The evaluation of his learning ought to reflect his own performance* in such a way that the performance of his classmates would neither add nor detract. Each student should be encouraged to work independently or in concert with others, whichever way he can best do the job.**

. . . It seems to me that every instructor can and should determine at the beginning of a course what he hopes his students will know and can do when they have completed his course. His evaluation procedures can and should be designed to measure whether his students have measured up to his aspirations for them. Each student's final grade should reflect how closely he has come to his instructor's goals for the course.

A student's failure is not his alone; the instructor should take some responsibility for having failed the student—by not having motivated enough, by not having been clear enough, by not having been objective and fair enough in his grading. Similarly, a student's success is his instructor's as well. But I fear we take credit for too many of our successes and give blame for too many of our failures. Grading on a curve encourages us to do this by permitting us to avoid the fact that we also are earning the grades we should be giving. Grading on a curve permits us to avoid considering our standards and then work-

ing hard with students to achieve them.

Before much could be done to resolve this conflict between *relative* and *absolute* grading, a stronger issue took priority. Student unrest was building up during the 60's and grading became interlaced with the social issues of war and peace, draft deferment and educational elitism in general. Teachers and students discovered a "moral" reason to question a grading system which had been taken more or less for granted as an inevitable component of the educational process. Distinctions as to what grading does or does not do for students began to surface.

"GRADING ≠ EVALUATION"

However important the institutional uses of grades might be, they stand at least one step outside the classroom. In the debate about grading, a clear distinction should be made between the administrative uses of grades and the evaluative process by which the teacher supports the educational progress of a student.

> **Evaluation is integral and indispensable to the learning process. A teacher's descriptive evaluation of student achievement is a far more significant contribution to the student's education than is a final grade. Without some form of appraisal that directs and confirms the student's effort, learning becomes inefficient; the student loses the guides that enable him to control his direction and rate of learning. Evaluation can take the form of conferences between student and teacher, comments on papers and exams, conversations with other students, etc. It is the process by which the student is informed of how well he is achieving the goals the teacher has set for the class and by which the student develops a framework for evaluating his progress toward his own personal goals (Ericksen and Bluestone, 1971).**

(In the technical language of educational research, this distinction between evaluation and grading is called "formative" vs. "summative" evaluation.)

The path of least resistance for the teacher is to evaluate students in terms of their competitive performance with each other. We prepare quizzes and examinations to stretch a class of students along a vaguely defined continuum and then draw cutoff lines between the A's, the B's, and the C's. The teacher holds controlling power and one distraught student expressed her antagonism thus: "I just don't like to play the professor's game—'I've got a secret, see if you can guess what it is.'" On the basis of their competitive success in anticipating what teachers expect them to know, we reward the winners with honors and academic prizes. The classroom is viewed as a microcosm of life—with its inevitable wins and losses.

Current developments under the heading of "contract teaching" stand in sharp contrast—proponents hold that academic standards are best defined in terms of the levels of competence students actually achieve. The GPA is a convenient mechanism, but neat, quantitative measures, e.g., the I.Q., tend to take on a manipulative significance out of proportion of their validity. Via the GPA, honors convocations can be mass produced where those with 3.80 and better receive blue ribbons but the 3.79's go unrewarded. The contract people claim there must be better ways to recognize academic excellence than to sum individual difference measures of test-taking "brightness." Grading by contract requires a basic change in the meaning and the interpretation given to the grade. In effect, the final evaluative response by the teacher stands as the "grade"—an index of having satisfactorily met the goals of the course.

GRADING BY CONTRACT

Grading by contract has a number of ancestors, including basic research on human learning. In the laboratory the experimenter first selects one of two criteria for learning: trials or performance. In the "trials" alternative, one observes (and records) the responses of each learner through a fixed number of trials; what level of performance is reached after 15 trials (or 15 weeks in the academic term)? The second choice is to establish a mastery criterion for learning, e.g., one errorless performance, and to record the number of trials (or the time) required for each learner to meet this standard. The former has the advantage in describing the performance of a *group of learners*, a class, and does not require the explicit definition of the criteria for learning. The data derived from the mastery learning condition are more analytical and, furthermore, the fast learners can finish and turn to other things while the slower learners continue as needed to *complete the task.* The parallels to classroom grading practices and to the contrasting meaning of the course grade are quite apparent.

Contract teaching has become the generic label for several instructional arrangements whereby the specific levels of performance are set forth at

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REPORTS ON IMAGINATIVE TEACHING

Twice yearly *Change* magazine publishes a special *Report on Teaching*, describing notable advances in undergraduate instruction. The major disciplinary associations serve as the initial screening mechanisms for identifying good teaching efforts. The first issue reports projects in chemistry, history, and psychology (with two U-M contributions).

U-M faculty and staff may obtain copies without charge by calling 764-0505 or 763-0158. Others may request bulk orders by writing: Undergraduate Teaching Program, *Change*, NBW Tower, New Rochelle, NY 10801.

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the beginning of a course of study and the work is completed when these standards are met. The essential features of mastery learning are incorporated in various self-paced study arrangements such as the Keller Plan, the Personalized System of Instruction (PSI), Audio-tutorial Instruction, and the like. At the end of this *Memo* references are made to recent publications about contract teaching.

Contract Variations

In a specific course, the teacher must decide in advance what standards of performance are appropriate for the A, B, or C grade. These decisions might be based on a single criterion, such as a specified number of correct answers on a comprehensive final examination. More frequently, the teacher presents a number of options: a combination of test scores, and/or term papers, and/or special projects, etc. In the most complicated arrangement, the teacher may negotiate individual contracts with each student. In this instance, the teacher defines the limits or boundaries of a course, that is, the topics or the subject-matter areas within which he or she feels qualified to make evaluative judgments about the level and quality of student performance. Within these limits each student may then propose a specific pattern of work in the form of a written contract to be agreed upon by both the teacher and the individual student at the beginning of the term.

In most instances teachers allow students to repeat a given test or short paper assignment until the specified performance standards are met. This option to retake a test is not a trivial matter. In contrast to the usual testing procedure, the aim is to demonstrate mastery of the assigned work rather than to place the students on a competitive scale from high to low. This all-or-none concept of assessment contradicts the test-using habits of most teachers, but is the essential change given by the contract procedure.

Quantity/Quality

It is one thing to set forth a sequence of specific performance goals to be achieved—tests to be passed, papers written, projects completed, reading logs finished, etc.—but quite another thing to assess the quality of these products. Most students will opt for and achieve the "A" contract and it is sometimes surprising how much they can learn when given clear and meaningful assignments. To preserve the final grade "distribution" the teacher should be conservative, marking out the *quantitative* requirements for earning C and B grades, while reserving the "vital margin" necessary to achieve the A grade for the teacher's *qualitative* evaluation.

There may be certain courses where a purely quantitative contract might be satisfactory but, for the most part, the academic standards of this University require the qualitative evaluation. A purely quantitative contract tends to let the minimum standards become the optimum and this, of course, would weaken the very standards of achievement we are trying to raise. Contract grading does not, therefore, take the teacher off the evaluation hook, and should not be so perceived by the students. An insecure teacher may seek to use the contract arrangement as a means of buffering the usual confrontation with students about evaluation and grading. This is an escape mechanism.

Peer Review

The teacher is the expert in the subject matter covered by the course and is the one person best qualified to be explicit as to the dimensions and the options of the contracts. The teacher is advised, nevertheless, to seek confirmation from departmental colleagues for the standards in his or her contract plan. If, for example, a much larger proportion of students achieve the A grade than is normally accepted under the departmental grading policy, it is important that the quality of the A contract be supported by these other teachers. Granted, peer review is not a common practice, but it would seem to be a highly appropriate procedure for confirming the academic quality within a given area of instruction.

The specific features of a course contract reflect the special requirements of the subject matter, the values of the particular teacher, and the characteristics of the students who normally take such an offering. Contract grading makes full use of the broad perspective of the teacher as a subject-matter expert, as a researcher and as one who can effectively transmit research and scholarly information to students. These special strengths of the faculty are necessary when setting forth the step-by-step sequence of facts, concepts, and procedures to be mastered by students as they pursue a given area of study. Even so, a review of a teacher's contract plan by colleagues would be a valuable checks-and-balances benefit for the students.

Contract grading also plays to the strengths of the students. By the time they reach college most have learned how to learn quite well and can make full use of this ability when they have the green light as to exactly what substantive goals they are expected to reach. Perhaps this extra effort is a direct function of the *intrinsic* satisfaction when a student knows that he or she is on the right track toward mastery of a significant body of knowledge. The *extrinsic* reward of a conventional grade has a less enduring motivating quality.

Contract grading comes directly to the point, but these explicit demonstrations of competence are not, of course, the total end product of a course. As in a conventional class, the contract requirements serve as the cognitive vehicle by which students develop and extend the larger and more lasting educational benefits of a course. As teachers, we design the content of a course and emphasize those elements which lead stu-

dents to inquire further about complex concepts and principles, to use the methods and problem-solving procedures of a discipline and to help reshape their attitudes and values as an influence in their thinking for many years. However, as my colleague Wilbert J. McKeachie points out, "The number of new situations to which learning from a particular course can be applied is theoretically infinite. Thus, no one can really 'master' the domain encompassed by the goals of a particular course." (1976) A good teacher, nevertheless, is skillful in drawing up contract requirements that support this extension of learning and in this regard, most of us will benefit from comments and criticisms from our peers.

A TASK FOR THE TEACHER

Grading by contract places a considerable extra load on the teacher. In the first place, the specific goals of the course must be clearly stated and the sequence of topics and resources for achieving these objectives carefully spelled out. Frequently, it is necessary to prepare a syllabus or a workbook specifically tailored to the detailed format of the contract-oriented course.

The second major task is to prepare the mastery criteria consistent with the aims of the course. In most instances, this takes the form of testing. If a student fails to meet the required standards (frequently 90% correct answers), he or she returns to the "textbook," to the tutor, or to other sources to continue preparation for taking a parallel form of the mastery test. In any case, herein lies the special challenge to the teacher: by what manner of questioning, problem solving, project planning, paper writing, and reference citing, etc., might a student demonstrate the knowledge and skills that make educational good sense? This question is an especially valid test of the teacher's talents.

Many teachers are pedagogically conservative and feel more comfortable conducting a class in a manner similar to the classes they took as students and to those they may have been teaching for a number of years. Admonishment and exhortation will not lower this resistance, and the positive reaction from students is perhaps the strongest persuasion for the faculty to enter into the rather demanding contract arrangement. Certainly, there will also be resistance to the peer review feature, but this only underlines the fact that the grading process has more or less been kept in the closet rather than being open for careful analysis and review by the teaching staff.

I have not, myself, taught an undergraduate course via the pure contract method, but in my role as faculty coordinator for a large introductory psychology course I am impressed by the success of our graduate student teaching assistants in using this procedure. About one-third of these TAs use some variation of a contract plan of teaching. One TA, for example, handles the testing and tutoring during her office hours (double, however, the normal hours) and her highly successful discussion sections reflect a climate of cooperation among students as opposed to the usual atmosphere of competition. These students engage in free and open discussion, pursuing in depth the value implications of the content of this introductory psychology offering.

SUMMARY

Insofar as the past is the best indicator of the future, LJ–M teachers will continue their efforts to assign a fair grade to each student. The department, the college, and the university set the ground rules for grading and limits are imposed on the freedom and flexibility of the individual teacher to unilaterally manipulate and change the grading System. Even so, some units are more vigilant than are others in guarding their standards and policies with respect to grading.

In perspective, four things have happened during the past 10 years: (1) there has been a general inflation of grades, (2) variations on the pass-fail grade are widely used (for many students A is "pass"; B is "failure"), (3) the academic community is considerably more sensitive to the pros and cons of grading, and finally, (4) a significant proportion of teachers are shifting the basis of grading from "the curve" to how well students achieve specified course objectives.

For purposes of exposition, this *Memo* has made a sharp contrast between "norm-referenced" grading (on the curve) and "criterion-referenced" grading (including contract). Most teachers incorporate both methods but without always being aware of the logic behind their grading procedures. Some colleges around the country have totally converted to competency-based instruction and we will have to wait to see whether this will clarify or complicate the meaning of grades. In the meantime, the academic units of this University must continue to search out a rational policy to guide the grading decisions made by its teachers. Right now we have a mixture of differing concepts about grading. We do not agree as to the zero point for measurement: the norms set by students or the mastery criteria set by teachers. As individual teachers, however, we usually work out a compromise.

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Gold, M. Grades. *Memo to the Faculty*, #18, June, 1966.

McKeachie W. J. Informal communication, 1976.

SUGGESTED READING: GRADING ISSUES AND CONTRACT LEARNING

The following are available for reference at CRLT:

Berte, N. R. (Ed.) *Individualizing Education by Learning Contracts: New Directions for Higher Education*, No. 10. Washington, D.C.: Jossey-Bass Publishers, Summer, 1975.

Studies on the philosophical rationale and practical realities of individualization by various approaches to contract learning. Sample programs include methods of effecting change in a traditional university.

Bolin, J. G. Honors inflation. In D. W. Vermilye (Ed.), *Learner-centered reform*. (Current Issues in Higher Education series). Washington, D.C.: Jossey-Bass Publishers, 1975, pp. 144–149.

An article focusing on the changing nature of honors degrees, attributing this in part to the advent of pass/no credit grading and demonstrating the need for reassessment of current evaluation practices. Other chapters consider such issues as formative evaluation and faculty roles in contract learning.

Hodgkinson, H. L. Evaluating individualized learning. In N. R. Berte (Ed.) pp. 83–91.

Discusses the use of diagnostic information to individualize evaluation as well as teaching—to improve, not simply measure, learning. Implications for faculty and institutions are given attention.

Mayville, W. V. The trouble with grading is . . . *College and University Bulletin*, October 1975, *28* (2), 5–8.

A historical perspective and review of literature on grading issues with a lengthy bibliography appended.

Milton, O., & Edgerly, J. W. *The testing and grading of students*. New Rochelle, NY: *Change* Magazine and Educational Change, 1976.

Given the centrality of testing and evaluation to the learning process, this report stresses the importance of setting learning goals, constructing tests to measure objectives, and using grades as valuable feedback for student learning. A thorough reference list is included.

Scott, R. A. Grades: Inflated, skewed, or both? *College Board Review*, Summer, 1975, *96*, 6–9.

Scully, M. Inflated grades worrying more and more colleges. *Chronicle of Higher Education*, May 19, 1975, p. 1.

White, E. M. Sometimes an A is really an F. *Chronicle of Higher Education*, February 3, 1975, p. 24.

Concerned with the "hypocrisy and corruption" fostered by the current grading system, White believes college faculties are still the best means of "sorting and selecting" for advancement by merit.

The following were referenced in *Memo* #55, "Learning How to Learn Independently":

Keller, F. S., & Sherman, J. G. *The Keller plan handbook*. Menlo Park, CA: W. A. Benjamin, Inc., 1974.

Ruskin, R. S. *The personalized system of instruction: An educational alternative*. Research Report #5. Washington, D.C.: American Association for Higher Education, 1974.

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